

WHAT IS CLAIMED IS:

1. A solid-state imaging device having a first color picture cell array which contains picture cells having a photo-electric converting element for
5 converting incident light to electric signals arranged two-dimensionally, and a second color picture cell array which contains picture cells having a photo-electric converting element for converting incident light to electric signals arranged two-dimensionally,
10 placed in juxtaposition, on a substrate, wherein said substrate is provided with a common well being common to the first color picture cell array and the second color picture cell array.

15 2. The solid-state imaging device according to claim 1, wherein a well-wiring and a well-contact are provided between the first color picture cell array and the second color picture cell array.

20 3. The solid-state imaging device according to claim 1, wherein an element isolation region is provided between the first color picture cell array and the second color picture cell array.

25 4. The solid-state imaging device according to claim 1, wherein a light-intercepting member is provided between the first color picture cell array and

036740-0122350

the second color picture cell array.

5 5. The solid-state imaging device according to
claim 1, wherein the photo-electric converting element
is a photodiode, the picture cell has plural
transistors of an insulating gate type, the common well
provides a first conductivity type semiconductor region
for an anode or a cathode of the photodiode, and each
first conductivity type well for the plural insulating
10 gate type transistors.

15 6. The solid-state imaging device according to
claim 1, wherein the photo-electric converting element
is a photodiode, and the common well provides a first
conductivity type semiconductor region for an anode or
a cathode of the photodiode, and a well for formation
of a charge transfer channel of CCD.

20 7. The solid-state imaging device according to
claim 1, wherein a third color picture cell array is
additionally provided so as to have said common well
which array contains picture cells having a photo-
electric converting element for converting incident
light to electric signals arranged two-dimensionally.

25 8. The solid-state imaging device according to
claim 1, wherein the color picture cell arrays have

respective common color filters on the photo-electric converting elements.

9. The solid-state imaging device according to
5 claim 8, wherein the common color filter is a color filter of red, green, or blue.

10. The solid-state imaging device according to
10 claim 1, which has a terminal for connection with a power source for supplying a voltage for generating a reference voltage for the common well from an outside of the solid-state imaging device.

11. A solid-state imaging device having a first
15 color picture cell array which contains picture cells having a photo-electric converting element for converting incident light to electric signals arranged two-dimensionally, and a second color picture cell array which contains picture cells having a photo-
20 electric converting element for converting incident light to electric signals arranged two-dimensionally, placed in juxtaposition on a substrate, wherein said solid-state imaging device has between the first color picture cell array and the second color picture cell
25 array a well-contact and a well-wiring for applying a reference voltage to a common well common to the first color picture cell array and the second color picture

cell array.

12. The solid-state imaging device according to claim 11, wherein the well-wiring is formed from a light-intercepting material to intercept the incident light upon the common well region between the first color picture cell array and the second color picture cell array.

13. The solid-state imaging device according to claim 12, wherein the light-intercepting material is a metal mainly comprised of aluminum or copper.

14. The solid-state imaging device according to claim 11, wherein an anti-reflection layer is formed on or above the well-wiring to prevent reflection of the incident light.

15. The solid-state imaging device according to claim 14, wherein a main component of the anti-reflection layer is selected from the group constituting of titanium nitride, tantalum nitride, tungsten nitride and tungsten.

16. The solid-state imaging device according to claim 11, wherein a plurality of the well-contacts are formed between the first color picture cell array and

the second color picture cell array.

17. The solid-state imaging device according to claim 11, wherein the photo-electric converting element is a photodiode, the picture cell has plural transistors of an insulating gate type, the common well provides a first conductivity type semiconductor region for an anode or a cathode of the photodiode, and each first conductivity type well for the plural insulating gate type transistors.

18. The solid-state imaging device according to claim 11, wherein the photo-electric converting element is a photodiode, and the common well provides a first conductivity type semiconductor region for an anode or a cathode of the photodiode, and a well for formation of a charge transfer channel of CCD.

19. The solid-state imaging device according to claim 11, wherein a third color picture cell array is additionally provided which array contains picture cells having a photo-electric converting element for converting incident light to electric signals arranged two-dimensionally.

20. The solid-state imaging device according to claim 11, wherein the color picture cell arrays have

respective common color filters on the photo-electric converting elements.

21. A solid-state imaging device having a first
5 color picture cell array which contains picture cells
having a photo-electric converting element for
converting incident light to electric signals arranged
two-dimensionally, a second and third picture cell
arrays which respectively contain picture cells having
10 a photo-electric converting element for converting
incident light to electric signals arranged two-
dimensionally, and a fourth color picture cell array
which contains picture cells having a photo-electric
converting element for converting incident light to
15 electric signals arranged two-dimensionally, placed in
juxtaposition on a substrate,
wherein the first color picture cell array and the
fourth color picture cell array are placed in a
diagonal relation, and the second color picture cell
20 array and the third color picture cell array are placed
in another diagonal relation; and
said solid-state imaging device has between the first
color picture cell array and the second color picture
cell array a well-contact and a well-wiring for
25 applying a reference voltage to a common well common to
at least the first color picture cell array and the
second color picture cell array.

22. The solid-state imaging device according to claim 21, wherein the well-wiring is formed from a light-intercepting material to intercept the incident light upon the common well region between the first color picture cell array and the second color picture cell array.

23. The solid-state imaging device according to claim 22, wherein the light-intercepting material is a metal mainly comprised of aluminum or copper.

24. The solid-state imaging device according to claim 21, wherein an anti-reflection layer is formed on or above the well-wiring to prevent reflection of the incident light.

25. The solid-state imaging device according to claim 24, wherein a main component of the anti-reflection layer is selected from the group consisting of titanium nitride, tantalum nitride, tungsten nitride and tungsten.

26. The solid-state imaging device according to claim 21, wherein a plurality of the well-contacts are formed between the first color picture cell array and the second color picture cell array.

27. The solid-state imaging device according to claim 21, wherein the photo-electric converting element is a photodiode, the picture cell has plural transistors of an insulating gate type, the common well provides a first conductivity type semiconductor region for an anode or a cathode of the photodiode, and each first conductivity type well for the plural insulating gate type transistors.

28. The solid-state imaging device according to claim 21, wherein the photo-electric converting element is a photodiode, and the common well provides a first conductivity type semiconductor region for an anode or a cathode of the photodiode, and a well for formation of a charge transfer channel of CCD.

29. The solid-state imaging device according to claim 21, wherein a third color picture cell array is additionally provided which array contains picture cells having a photo-electric converting element for converting incident light to electric signals arranged two-dimensionally.

30. The solid-state imaging device according to claim 21, wherein the color picture cell arrays have respective common color filters on the photo-electric converting elements.

31. The solid-state imaging device according to claim 21, wherein said solid-state imaging device has between the third color picture cell array and the fourth color picture cell array a well-contact and a well-wiring for applying a reference voltage to a common well common to at least the third color picture cell array and the fourth color picture cell array.

32. The solid-state imaging device according to claim 21, wherein the common well is common to all of the first to fourth picture cell arrays.

33. The solid-state imaging device according to claim 21, wherein the well-contact and the well-wiring for applying the reference voltage to the common well are not formed between the first color picture cell array and the third color picture cell array.

34. The solid-state imaging device according to claim 21, wherein the first color picture cell array has a color filter of one color of red and blue, the second and the third color picture cell arrays have green filters respectively, and the fourth color picture cell array has a color filter of the other color of red and blue.

35. An imaging device for imaging an object,

comprising a solid-state imaging device set forth in
claim 1, and a power source for supplying a voltage for
generating a reference voltage for the well-wiring of
the solid-state imaging device from an outside of the
5 solid-state imaging device.

36. An imaging device for imaging an object,
comprising a solid-state imaging device set forth in
claim 1, and a focusing lens for focusing an image of
10 an object on the color picture cell arrays.

37. An imaging device for imaging an object,
comprising a solid-state imaging device set forth in
claim 11, and a power source for supplying a voltage
15 for generating a reference voltage for the well wiring
of the solid-state imaging device from an outside of
the solid-state imaging device.

38. An imaging device for imaging an object,
20 comprising a solid-state imaging device set forth in
claim 11, and a focusing lens for focusing an image of
an object on the color picture cell arrays.

39. An imaging device for imaging an object,
25 comprising a solid-state imaging device set forth in
claim 21, and a power source for supplying a voltage
for generating a reference voltage for the well wiring

of the solid-state imaging device from an outside of the solid-state imaging device.

40. An imaging device for imaging an object,
5 comprising a solid-state imaging device set forth in claim 21, and a focusing lens for focusing an image of an object on the color picture cell arrays.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100